by M. de Lacvivier on his admission as doctor of the faculty of sciences, upon the Cretaceous beds of l'Ariège, is the result of many years of labor. The strata below the Cretaceous are not neglected. The writer describes new and interesting Devonian beds which he has discovered, chiefly marbles with remains of Goniatites. The Carboniferous is absent in the department, but the Trias and Jurassic are present, and to the latter must be referred a mass of dolomites and marbles which were previously believed to be Palæozoic, but which contain Jurassic fossils. The uneven surface of the Jurassic beds is filled by a ferruginous deposit (bauxite) forming the base of the Urgonian, which is succeeded by the Gault. Many new fossils are described from the Urgonian, and the Gault is highly fossiliferous. The Upper Cretaceous (Cenomanian, Turonian, Senonian) is completely uncomformable with the Lower.——Some pieces of pumice, thought to have come from Krakatoa, have been picked up at Mayotte, off the north-west coast of Madagascar.

Tertiary.—M. E. van den Brock has discovered fragments of Scandinavian rocks in the Post-tertiary deposits of Belgium. The only known piece large enough to be called an erratic block is of granite, measures $0.8 \times 0.5 + 0.6$ meters, and is imbedded in the fine Campinian sands of Wortel.

General.—A hundred and twenty pages of the Annales des Mines (1884, 2e livraison) are occupied by a study of the stratigraphical geology of the Hartz mountains, with especial reference to the plutonic rocks, diabases, porphyries, gabbros, granites, and to their enclosed metalliferous veins.——F. Kollbeck contributes to the Zeit. der Deut. geol. Gesell. an account of the extensive porphyritic rocks of Southern China.——Messrs. Steenstrup and Lorenzen (Zeit. der Deut. geol. Gesell., 1883) after a study of the so-called meteoric masses of iron in Greenland, conclude that these masses are telluric, and that the presence of nickel can no more be considered as an infallible evidence of meteoric origin.

MINERALOGY.[1]

New Minerals.—*Rinkite*[2] (Lorenzen).—Joh. Lorenzen, of Copenhagen, has given this name to a new mineral from Kangerdluarsuk in Greenland, in honor of Dr. Rink, recently director of the Danish Explorations in Greenland.

It occurs in crystals with arfvedsonite, ægirite, eudialite, steenstrupite, lithia mica, etc.

Monoclinic. Color golden-brown. Translucent in thin splinters, when unaltered; straw-yellow and earthy when altered. Hardness 5. Specific gravity 3.46.

[1] Edited by Professor H. Carvill Lewis, Academy of Natural Sciences, Phila.

[2] *Zeitsch. für Kryst.*, 1864, ix, p. 248.

A mean of five closely accordant analyses gave:

Fl	SiO_2	TiO_2	CeO	LaO	DiO	YO	FeO	CaO	Na_2O	
5.82	29.08	13.36		21.25		0.92	0.44	23.26	8.98	= 103.11

The formula as deduced is:

$$2\,\overset{II}{R}\,\overset{IV}{R}\,O_3 + NaFl$$

wherein $\overset{II}{R}$ = Ce La Di Y Fe Ca

and $\overset{IV}{R}$ = Si Ti

Before the blowpipe it is fusible with difficulty to a black cinder. It dissolves in borax in the oxidizing flame to a bead which is deep yellow when hot, pale yellow when cold. In the reducing flame it becomes colorless when cold. In salt of phosphorus it shows a skeleton of silica, and gives the same reaction when hot as with borax; when cold, after heating in the reducing flame, it becomes violet. Supersaturation of the bead makes it opaque white. These reactions are due to titanium and cerium. It is decomposed by weak acids, with separation of silica and titanic acid.

The crystals exhibit in polarized light a twinning structure parallel to the orthopinacoid. This structure is also shown by the occurrence of fine striations on the orthodomes and prism.

Polylithionite[1] (Lorenzen).—At the same locality a lithia mica occurs in handsome pale green or white six-sided tables imbedded in albite. These tables are divided into sectors by fine lines or striations resembling those of zinnwaldite (lepidolite). The plane of the optic axes is at right angles to the striations, and shows the crystals to be composed of three or six individuals. The angle between the bisectrix and the vertical to the base is somewhat greater than that given for zinnwaldite, although practically their optical properties are identical. The other characters of the two micas are very similar.

Chemically the mica from Greenland has a larger percentage of fluorine and of lithia and less alumina than most lepidolite.

A mean of three analyses gave:

Fl	SiO	AlO	FeO	K_2O	Na_2O	Li_2O
7.32	59.25	12.07	0.93	5.37	7.63	9.04

The name polylithionite refers to its large per centage of lithia. The mineral, however, is not sufficiently distinct from lepidolite to warrant giving it a specific name, and should be regarded merely as a variety of that mica.

Goyazite[2] (Damour).—In the diamond-bearing sands of Minas Geraes, Brazil, certain rounded, transparent grains of a pale yel-

[1] *Zeitsch. für Kryst.*, 1864, IX, p. 251.
[2] Bull. Soc. Min. de France, 1884, VII, No. 6, p. 204.

low mineral occur which Damour has shown to belong to a new species. The grains have an easy cleavage, and in the polariscope exhibit a cross and series of rings, such as would be given by a section of a uniaxial mineral. The hardness is that of apatite, the specific gravity 3.26.

Heated in a matrass it gives off water and becomes white and opaque. Thin splinters can be fused in the blowpipe flame. Moistened with nitrate of cobalt, a blue color is obtained. It is not attacked by acids.

Composition:

P_2O_5	Al_2O_3	CaO	H_2O	
14.87	50.66	17.33	16.67	= 99.53

The formula P_2O_5 5 Al_2O_3 3 CaO + 9 H_2O is deduced.

The name is taken from that of the province containing the principal diamond localities.

Hillangsite[1] (Igelström).—Igelström has found what he believes to be a new mineral in large quantities at the iron mine of Hillang, in the parish of Ludvika, Sweden. It occurs with garnet, magnetite and igelströmite. It resembles the anthophyllite of Texas, Pa., and the kupfferite of Delaware county, Pa., as also foliated rhodonite; but it is colorless and transparent. Sometimes the mineral is impregnated with microscopic crystals of magnetite, when it becomes black. It has a characteristic nacreous or silky luster, and is white when pure. Hardness = 6. It fuses with difficulty to a slightly magnetic scoria, gives reactions for manganese, and is not dissolved by acids.

As seen by the following analysis it is essentially a bisilicate of the protoxides of iron and manganese:

SiO_2	FeO	MnO	MgO	CaO	
48.25	28.17	12.08	5.86	3.22	= 97.58

According to Bertrand the optical properties are those of the amphiboles. The two cleavages make an angle like that of amphibole, the form is monoclinic and the orientation of the axes is like that in the amphiboles. The composition is also clearly that of an amphibole. Similar species have already been described under the names of silfbergite, dannemorite, asbeferrite. This mineral differs so slightly from these varieties of hornblende that a new name does not seem to be necessary.

PHOTOGRAPHY AS APPLIED TO MINERALS.—An excellent illustration of the good results that may be obtained from photographs of minerals may be seen in the last number of the Transactions of the Academy of Science of St. Louis.[2] Mr. A. V. Leonhard has illustrated a paper on the occurrence of millerite in St. Louis with some photographs of that mineral reproduced by

[1] Bull. Soc. Min. de France, 1884, VII, No. 6, p. 232.
[2] Vol. IV, No. 3, p. 493, 1884.

the artotype process, and it is at once seen how far superior such views are to any drawings. The mineral itself seems before us. In one picture a calcite crystal is pierced by a spear of millerite. In another a beautiful radiating tuft of needle-like crystals of millerite fill a cavity in the limestone. Four pictures in all are given, these being by far the most valuable part of the paper.

While an outline drawing is undoubtedly necessary for the representation of the precise crystalline form of any mineral, such a drawing, always to some extent conventionalized, may give no idea at all of the natural appearance of the mineral. For purposes of determination, and especially for illustrating fine specimens, it is probable that photography will, before long, be made use of. A complete set of photographs of typical specimens would be highly valued by mineralogists.

SZABOITE.—In 1878 Professor A. Koch published a description of a Transylvania mineral which, occurring in minute, thin, tabular crystals in cavities in andesite, he named *szaboite*, in honor of Professor J. Szabó, of Budapest. The mineral was described as triclinic, and as related in composition to babingtonite.

J. A. Krenner, of Budapest, has recently published an extended article[1] on szaboite, in which he comes to the conclusion that szaboite is not a distinct species, but merely a variety of *hypersthene*. A careful optical examination showed identical properties with hypersthene. Crystallographically he found it to be orthorhombic, not triclinic. The cleavage, the plane of the optic axes and bissectrix, the axial dispersion and the pleochroism are all identical with those of hypersthene. The hardness and specific gravity are also similar. Chemically it appears that Professor Koch was both mistaken as to the state of oxidation of the iron, the iron existing as protoxide, not sesquioxide, as he thought, and also that his analysis failed to give the full percentage of magnesia.

Since the proportions of iron and magnesia are variable in hypersthene, and may replace one another, it is held that the only question is as to the precise variety of hypersthene to which szaboite belongs.

MINERALOGICAL NOTES.—A Text-book of Descriptive Mineralogy, by Hilary Bauermann, of the Royal School of Mines (London), has just been issued as a companion volume to his Text-book of Systematic Mineralogy, already noticed in the NATURALIST. The present volume is a concise presentation of the characters of all the principal minerals, and will be valuable to the class for which it is intended.——An amateur mineralogical journal published monthly "in the interest of mineralogists and collectors of antiquities of all kinds," and entitled *The Young Mineralogist and Antiquarian*, has reached its second number. The edi-

[1] *Zeitsch. für Kryst.*, IX Band, 3 Heft, 254.

tor, Mr. T. H. Wise, of Wheaton, Ills., is a boy seventeen years of age. The journal is very creditable, and will doubtless be useful to young collectors.——A. V. Leonhard has published in the Transactions of the St. Louis Acad. Science a descriptive catalogue of the minerals of Missouri and a list of the more important localities of minerals in that state.——Dieulafait has examined the so-called "*cipolin marbles*," which occur in lenticular beds in gneiss in various parts of the world. He finds that a trace of manganese is invariably present, and argues from chemical reasons that these marbles and the surrounding gneiss are contemporaneous deposits. Geological investigations have led to the same conclusion.——*Amalgam* has been found at the Friedrichssegen mine near Oberlahnstein. Specimens of native silver and native copper from the same locality have been found by Sandberger to contain traces of mercury.

BOTANY.[1]

SELF-PLANTING OF SEEDS OF PORCUPINE GRASS.—In connection with the two notes relating to the fruit of the porcupine grass, it may not be without interest to state that while engaged in geological work in Dakota, north of the Northern Pacific R. R., we were much annoyed by the fruit of this grass. Indeed I found the only way to walk with comfort through this grass was to roll my pants above my knees and my socks down over my shoes.

I also observed, on several occasions, these seeds planted two inches deep in the soil with the awn protruding from the ground. It is plain that with the point of one of these fruits once entered below the surface of the soil the swelling and shrinking, due to varying amounts of moisture, would work the seed directly into the ground.—*F. H. King, River Falls, Wis.*

THE ADVENTITIOUS INFLORESCENCE OF CUSCUTA GLOMERATA.—The flowers of this dodder are in dense clusters, which at maturity are so much crowded that it is impossible to make out their mode of origin, hence they have been described as cymose, panicled or as densely clustered, with no hint or suggestion as to their adventitious origin. A study of their development the past season shows them to be strictly adventitious and, as a consequence, endogenous as to origin.

A short time before the flower clusters appear the dodder stems, which are in close contact with their hosts, begin to broaden, as shown in Fig. 2, eventually becoming slightly lobulated. If at this time a longitudinal section of the stem be made, the cause of the broadening will be found to be in the development of numerous adventitious buds from the lateral fibro-vascular bundles. The appearance of these is shown in the outline sketch, Fig. 3, which is reduced from a camera sketch. In a cross-section of the stem

[1] Edited by PROF. C. E. BESSEY, Ames, Iowa.